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Brief on Appeal

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PU030244 (156-113)

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicants: Carl Christensen, et al.

Examiner: Matthew D. Spittle

Serial No: 10/568,046

Group Art Unit 211

Filed: February 10, 2006

Docket: PU030244 (156-113)

For: CHANGEABLE FUNCTIONALITY IN A BROADCAST ROUTER

Mail Stop Appeal Brief-Patents
Hon. Commissioner for Patents
P.O. Box 1450
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APPEAL BRIEF

Applicants appeal the status of Claims 1-25 as presented in response to the Final Office Action dated May 7, 2009 and as rejected in the non-final Office Action dated April 22, 2010, pursuant to the Notice of Appeal filed previously and submitted this appeal brief.

CERTIFICATE OF MAILING

I hereby certify that this amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Mail Stop Appeal Brief, Commissioner for Patents, Alexandria, Virginia 22313-1450 on:

Date

June 7, 2010


Lois Greene

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1. Real Party in Interest

The real party in interest is THOMSON LICENSING., the assignee of the entire right title and interest in and to the subject application by virtue of an assignment from the inventors to Thomson Licensing S.A. recorded with the Patent Office on February 10, 2006 at Reel/Frame 017597/0533 and a subsequent assignment from Thomson Licensing S.A. To Thomson Licensing recorded with the Patent Office on February 10, 2006 at Reel/Frame 017597/0872

2. Related Appeals and Interferences

None

3. Status of Claims

Claims 1-25 remain pending and stand rejected, prompting applicants' present appeal. Applicants have not cancelled or withdrawn any claims.

A copy of Claims 1-25 appears in Section 8.

4. Status of Amendments

The PTO entered applicants' amendment under 37 CFR §1.111 on March 27, 2009 in response to a non-final Office Action dated September 23, 2008. In response to an Appeal Brief filed on January 29, 2010, the Examiner reopened prosecution and issued a non-final Rejection on April 22, 2010. Excluding the Appeal Brief filed on January 29, 2010, applicants have filed no responses/amendments to their amendment filed on September 23, 2008. The non-final Office Action dated April 22, 2010, to which applicants have directed this appeal brief, remains currently pending.

5. Summary of Claimed Subject Matter

Independent Claim 1 recites to “[a] broadcast router” (Claim 1, preamble).

“[A] plurality of input cards for inputting data into the broadcast router” finds support in

applicants' specification at: page 2, lines 8-11; and page 6, line 23 through– page 7, line 9.

Moreover, the subject matter of this element involves item 410 in FIGS. 1 and 2.

“[A] plurality of output cards for outputting the data from the broadcast router” finds support in applicants' specification at page 2, lines 11-12; and page 7, lines 13-20. Moreover, the subject matter of this element involves item 460 of FIGS. 1 and 2.

“[A]t least one programmable device” finds support in applicants' specification at page 2, lines 14-16; and page 7, line 24 through page 8, line 16. Moreover, the subject matter of this element involves item 466 in FIG. 1.

“[A] configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions” finds support in applicants' specification at page 2, lines 12-14; and page 7, line 21 through page 9, line 13. Moreover, the subject matter of this element involves items 466 and 498 in FIG. 1.

“[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router” finds support in applicants' specification at page 2, lines 14-18; and page 4, line 19 through page 5, line 12. Moreover, the subject matter of this element involves item 498 in FIGS. 1 and 2.

Independent Claim 14 recites “[a] method for changing a functionality of a broadcast router, the broadcast router at least having a plurality of input cards, a plurality of outputs cards, and at least one programmable device” (Claim 14, preamble).

“[P]roviding a replaceable configuration control card for insertion into the broadcast router and for storing configuration information for configuring the at least one programmable device to perform a first set of functions” finds support in applicants' specification at page 2, lines 21-24; page 4, line 19 through page 5, line 12; page 6, line 23 through page 7, line 9; and page 12, lines 7-19. Moreover, the subject matter of this element involves items 466 and 498 of FIG. 1 and items 310, 320 and 330 of FIG. 3.

“[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router”

finds support in applicants' specification at page 2, line 25 through page 3, line 4; page 4, line 19 through page 5, line 25; and page 12, line 20 through page 13, line 2. Moreover, the subject matter of this element involves items 466 and 498 in FIG. 1 and items 340 and 350 in FIG. 3.

Independent Claim 19 is directed to “[a] broadcast router” (Claim 19, preamble).

“[A] plurality of input cards for receiving data into the broadcast router” finds support in applicants' specification at: page 2, lines 8-11; and page 6, line 23 through page 7, line 9. Moreover, the subject matter of this element involves item 410 of FIGS. 1 and 2.

“[A]n expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router” finds support in applicants' specification at: page 3, lines 5-10; and page 7, lines 7-12. Moreover, the subject matter of this element involves item 415 of FIG. 1; and item 287 of FIG. 2.

“[A] matrix card for receiving the data from the plurality of input cards for subsequent routing within the broadcast router” finds support in applicants' specification at page 3, lines 10-12; and page 7, lines 15-16. Moreover, the subject matter of this element involves item 465 of FIG. 1; and item 287 of FIG. 2.

“[A] plurality of output cards for receiving the data from the matrix card and for outputting the data from the broadcast router” finds support in applicants' specification at page 3, lines 12-13; and page 7, lines 17-20. Moreover, the subject matter of this element involves item 460 in FIGS. 1 and 2.

“[A]t least one programmable device” finds support in applicants' specification at page 2, lines 14-16; and page 7, line 24 through page 8, line 16. Moreover, the subject matter of this element involves item 466 in FIG. 1.

“[A] configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions” finds support in applicants' specification at page 2, lines 12-14 and page 7, line 21 through page 9, line 13. Moreover, the subject matter of this element involves items 466 and 498 in FIG. 1.

“[W]herein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router” finds support in applicants' specification at page 2, line 25 through page 3, line 4, page 4, line 19

through page 5, line 25; and page 12, line 20 through page 13, line 2. Moreover, the subject matter of this element involves items 466 and 498 in FIG. 1; and items 340 and 350 in FIG. 3.

6. Grounds of Rejection to be Reviewed on Appeal

Claims 1-11, 13-17 and 19-25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,254,112 to Cornet et al. (hereinafter “Cornet”) in view of U.S. Patent No. 5,625,780 to Hsieh et al. (hereinafter “Hsieh”) and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. (hereinafter “Notarianni”). Although the Examiner listed claim 10 in the above rejection (see page 3 of the Non-final Office Action dated April 22, 2010), applicants believed that the listing of claim 10 constitutes a mistake since the Examiner has separately rejected claim 10.

Claim 10 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cornet et al. in view of Hsieh et al. and what is old and well known in the art as evidenced by Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett (hereinafter “Bennett”).

Claims 12, 18, and 25 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Cornet in view of Hsieh, U.S. Patent No. 4,764,959 to Wantanabe et al. (hereinafter “Wantanabe”), and what is old and well known in the art as evidenced by Notarianni.

Applicants present the rejections under 35 U.S.C. §103(a) for review in this Appeal with respect to Claims 1-25, as argued with respect to independent Claims 1, 14, and 19.

Regarding the grouping of the claims, Claims 2-13 stand or fall with Claim 1, Claims 15-18 stand or fall with Claim 14, and Claims 20-25 stand or fall with Claim 19, due to their respective dependencies.

7. Argument

A. Introduction

In general, a broadcast router assigns one of a plurality of outputs to a signal from any one of a plurality of inputs. Broadcast routers can possess various functionalities and can comprise different hardware configurations. The price of a router can vary greatly depending

upon its level of functionality and its hardware configuration.

Conventional methods of upgrading routers have proven inadequate. Upgrades to broadcast routers occur by replacing one or more of the main components of the router, or, alternatively, by downloading new software to the router. However, replacing the main components of a router becomes costly, and the process of downloading new software incurs a reliability risk.

Advantageously, the present invention allows a broadcast router to provide different configurations or levels of operational sophistication in a cost efficient and reliable manner while using common hardware arrangements. More particularly, the present invention provides “[a] broadcast router” (Claims 1 and 19) and “[a] method for changing a functionality of a broadcast router” (Claims 14) which provide a number of advantages over the prior art and dispense with the problems that plague prior art systems.

In addition, the pending claims include novel features not shown in the cited references which applicants have already pointed out to the Examiner. Thus, independent Claims 1, 14, and 19 each patentably distinguish over the cited references in their own right. For example, the cited references, taken either singly or in any combination, do not disclose or suggest the below-identified elements of independent Claims 1, 14, and 19. Moreover, these claims remain distinct from each other as they recite different implementations and/or include different elements. For example, Claims 1 and 19 recite a broadcast router, while Claim 14 recites a method for changing a functionality of a broadcast router. Moreover, the broadcast router recited in Claims 1 and 19, along with the method set forth in Claim 14, each include different elements from each other and require separate consideration. Accordingly, each of independent Claims 1, 14 and 19 represent separate features/implementations of applicants’ invention, and each patentably distinguishes over the prior art. As such, applicants present independent Claims 1, 14 and 19 separately for review in this appeal.

B. Whether Claims 1-9, 11, 13-17 and 19-25 are Rendered Obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 1-9, 11, 13-17 and 19-25 as obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. The Examiner contends that the cited combination shows all of the elements recited in Claims 1-9, 11, 13-17 and 19-25.

Cornet relates to a system for reassembling packets in a network element (Cornet, Title; Abstract). Upon receipt of traffic flow in the network element, the ingress cards segments the traffic flow into internal cells for switching or routing in the network element (Cornet, Col. 4, lines 45-47). The ingress cards also add an internal header to each cell to provide addressing information for that cell as it traverses the network element (Cornet, Col. 5, lines 9-14). The traffic flows from the ingress card to the fabric component which uses the internal header information to control the routing of the traffic flow in the network element (Cornet, Col. 5, lines

23-29). Based on the internal header information, the traffic flows to one of the egress cards which then reassembles the internal cells and prepares the traffic for transmission (Cornet, Col. 5, lines 43-61).

Hsieh discloses a backplane for interconnecting printed circuit boards (Hsieh, Col. 1, lines 17-20). The backplane includes a motherboard which includes a plurality of slots for mounting printed circuit boards (Hsieh, Col. 5, lines 9-16), at least one field programmable interconnect device (FPID) for routing signals between the printed circuit boards (Hsieh, Col. 5, lines 16-18), and a read-only memory (ROM) which stores programming data for controlling the FPID (Hsieh, Col. 5, lines 63-65). On system startup, the programming data from the ROM gets transmitted to the control interface circuit in the FPID, which then uses the programming data to route signals in a manner indicated by the programming data (Hsieh, Col. 5, line 63 – Col. 6, line 7). Moreover, Hsieh explains that replacing or reprogramming the ROM to provide programming data that indicates a different signal routing pattern will change the routing of signals (Hsieh, Col. 6, lines 18-21).

Notarianni relates to a method and apparatus for transferring data between a host device and a plurality of portable computers (Notarianni: Title; Abstract). The Examiner relies on Notarianni for the limited purpose of providing evidence as to the desirability of incorporating a digital device onto a printed circuit board.

The combination of Cornet, Hsieh and what is old and well known as evidenced by Notarianni, does not disclose or suggest the subject matter of Claims 1, 14 and 19, thus warranting the allowance of such claims and the claims that depend therefrom.

For purposes of refuting the examiner's rejection, applicants point out that Claims 2-9, 11 and 13 depend from independent Claim 1, Claims 15-17 depend from independent Claim 14, and Claims 20-25 depend from independent Claim 19. Thus, Claims 2-9, 11 and 13 incorporate by reference all the elements of Claim 1, Claims 15-17 incorporate by reference all the elements of Claim 14, and Claims 20-25 incorporate by reference all the elements of Claim 19.

In the rejection of Claims 1, 14 and 19, the Examiner has acknowledged that Cornet fails to teach the "at least one programmable device" set forth in these claims, but relies on Hsieh as teaching this feature (See page 4 of the Non-final Office dated April 22, 2010). The Examiner further contends that it would have been obvious to one of ordinary skill in the art to incorporate the programmable device of Hsieh into the system of Cornet. Applicants respectfully submit that

a skilled artisan would not conceive of the examiner's proposed combination because Cornet teaches away from the incorporation a programmable device.

MPEP § 2141.02(VI) states that "[a] prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention." Moreover, the Federal Circuit has explained that "[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant" (*In re Fulton*, 391 F.3d 1195 (Fed. Cir. 2004)). Accordingly, where cited art teaches away from a claimed feature, or leads one of ordinary skill in a different direction than that taken by the Applicant, the cited art becomes unavailable for the purposes of an obviousness rejection.

In the present case, Cornet not only fails to teach or suggest a programmable device, but in fact teaches away from the use of a programmable device. In general, the present invention allows altering the functionality of a router by including a programmable device in the router configured in accordance with control information stored in a replaceable control card. Hence, by replacing the configuration control card which contains the configuration control information, a user can alter the functionality of a router.

On the other hand, Cornet teaches the changing the functionality of a network element by adding internal headers to the data flowing through that network element. As discussed, Cornet adds internal headers to the traffic flow upon entry of the traffic flow into the network element (Cornet, Col. 5, lines 9-19). A fabric component makes use of the header information to control the functionality of the network element by switching or routing the traffic flow in accordance with the header information (Cornet, Col. 5, lines 20-29). Thus, rather than incorporating a programmable device configured in accordance with control information on a replaceable card, Cornet teaches that desirability of altering the functionality of the network element by adding internal headers to the data flowing through the network element. Thus, Cornet teaches away from the incorporation of a programmable device for controlling the functionality of a router or other network device. Since Cornet teaches away from incorporating a programmable device, a skilled artisan would not conceive of modify Cornet to incorporate the features of Hsieh in order to arrive at the claimed invention. Rather, one of ordinary skill would follow a different path which suggests controlling the functionality of a network element by adding internal headers to the data flowing through the network element. Accordingly, applicants submit that the examiner

erred in rejecting applicants' claims for at least this reason.

The present rejection warrants reversal as improper because the modification of Cornet with the teachings of Hsieh would render Cornet unsatisfactory for its intended purpose. Pursuant to MPEP § 2143.01(V), “[i]f [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification” *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Cornet has at its primary goal to provide a “network element that reduces the resources required to reassemble packets and enable efficient processing of certain traffic flows” (Cornet, Col. 1, lines 47-51). However, if the programmable FPID and ROM of Hsieh become incorporated into the network element of Cornet, the resulting device would produce a result contrary to both of these objectives. More particularly, the incorporation of Hsieh’s programmable FPID into Cornet’s network element would require the addition of several pieces of hardware to the network element in Cornet. For example, the examiner’s proposed combination of Cornet and Hsieh would require the inclusion of a programmable device, along with a configuration control card which stores information for configuring the programmable device. Since the modification of Cornet with Hsieh requires the inclusion of additional components, this defeats Cornet’s goal of providing a “network element that reduces the resources required to reassemble packets”.

Moreover, the modification of Cornet with Hsieh further defeats Cornet’s goal of enabling the efficient processing of traffic flows. Since the fabric in Cornet relies solely on the header information to control the flow of traffic, the addition of an external configuration control card and one or more programmable devices to control the traffic flow would clearly increase the processing time associated with routing information through the fabric. For example, in addition to normal processing associated with routing traffic, the fabric would need to read and process the configuration information stored on the configuration control card and configure the fabric in accordance the configuration information. Accordingly, applicants maintain the present rejection lacks foundation because the modification of Cornet with the teachings of Hsieh would render Cornet unsatisfactory for its intended purpose.

Even further, the present rejection warrants reversal in view of MPEP § 2143.01(VI) which explains, “[i]f the proposed modification or combination of the prior art would change the

principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious" (*In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)). A finding that the principle of operation of a prior art invention has been changed is appropriate when the "suggested combination of references would require a substantial reconstruction and redesign of the elements shown in [the primary reference] as well as a change in the basic principle under which the [primary reference] construction was designed to operate" (see MPEP § 2143.01(VI), quoting *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959)).

The modification of Cornet with the programmable FPID in Hsieh would require a complete redesign of the invention in Cornet and would change the basic principle under which Cornet's invention operates. As discussed briefly above, to modify Cornet with Hsieh, requires the addition of several pieces of hardware to the network element of Cornet. For example, the fabric would require a programmable device or the fabric component would have to be completely replaced with the programmable FPID in Hsieh. The examiner's proposed combination also requires the addition of a configuration control card to store the information to configure the programmable device. Even further, Cornet would require modification to include a means for communicating the configuration information on the control card to the programmable device. Thus, to combine features taught by Hsieh into the network element of Cornet, the network element would require substantial reconstruction and redesign, and would change the basic principle under which Cornet was designed to operate. For at least this reason, the present rejection is believed improper.

In summary, applicants maintain that the combination of Cornet and Hsieh is improper. However, assuming, arguendo the legitimacy of the cited combination of Cornet and Hsieh, the present rejection lacks foundation because the cited references, whether taken singly or in combination, fail to teach or suggest a "*configuration control card [which] is configured for removal and replacement*" as recited in Claims 1, 14, and 19.

In rejecting Claims 1, 14 and 19, the Examiner contends that Hsieh essentially discloses the removable configuration card (Hsieh Col. 6, lines 18-21), except for the fact that Hsieh does not disclose incorporating the configuration control on a card. Nonetheless, the Examiner takes Official Notice "that it is old and well known in the art to incorporate a digital device (ROM) on a printed circuit board" as evidenced by Notarianni at Col. 21, lines 18-19 (see page 5 of the non-final Office Action mailed April 22, 2010). Applicants respectfully disagree that combination of

cited references discloses a removable configuration card

Applicants' specification explains that conventional methods of upgrading a router rely on replacing one or more of the main components of a router and that such replacement has proven costly (Applicants specification, page 1, lines 18-21). For example, conventional methods of upgrading a router may include physically dislodging a component from a printed circuit board and replacing the dislodged component. Thus, applicants' invention enjoys the advantage of providing a broadcast router capable of having its functionality readily changed so as to provide different configurations or levels of operational sophistication (Applicants specification, page 1, lines 22-25). In order to address the need for providing a router which can be readily changed, the present invention teaches a router that includes a configuration control card "configured for removal and replacement". By providing a configuration control card configured for removal and replacement, the present invention can provide routers with different configurations or levels of operational sophistication in a cost efficient and reliable manner while using common hardware arrangements (Applicants' specification, page 4, lines 11-14). Moreover, a router can be upgraded without using conventional methods which require removal and replacement of the components on a circuit board.

The passage cited in Hsieh does not disclose a configuration control card or a ROM "configured for removal and replacement". Although Hsieh explains that replacing the ROM in FIG. 2 can change the signal routing pattern for the crosspoint switch on the FPID (Hsieh, Col. 6, lines 18-21), this passage does not suggest in any way that the ROM is "configured for removal and replacement" as recited in the present claims. To the contrary, the cited passage relates to the problem (described at page 1, lines 18-21 of the Applicants' specification) associated with conventional methods of upgrading a router, which involve the costly and risky process of physically removing a component from a circuit board. In other words, although Hsieh described the ability to replace the ROM with another ROM to change the signal routing pattern for the FPID, Hsieh does not suggest that either the ROM, or the motherboard on which the ROM is situated, facilitates removal and replacement of the ROM. Rather, Hsieh describes replacement of the ROM using conventional methods. Therefore, since neither Hsieh, nor any of the other cited references, teach or suggest a "*configuration control card [which] is configured for removal and replacement...*", the cited combination fails to render obvious Claims 1, 14, and 19.

Accordingly, for at least the reasons discussed above, the combined teachings of cited references fail to render Claims 1, 14 and 19 obvious under 35 U.S.C. § 103(a). Therefore, Claims 1, 14 and 19 patentably distinguish over the cited references.

Moreover, “[i]f an independent claim is nonobvious under 35 U.S.C. §103, then any claim depending therefrom is nonobvious” (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)). Remaining Claims 2-9, 11, 13, 15-17 and 20-25 depend from either Claim 1, 14 or 19, or a claim which itself is dependent from one of these claims.

Accordingly, all remaining claims patentably distinguish over the cited references for at least the reasons set forth above, warranting reversal of the rejection.

C. Whether Claim 10 is Rendered Obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al. and U.S. Patent No. 6,539,534 to Bennett

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." See *In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claim 10 as being obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al. and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al and U.S. Patent No. 6,539,534 to Bennett. The Examiner contends that the cited combination shows all of the elements recited in Claims 1-9, 11, 13-17 and 19-25.

Applicants have discussed the Cornet reference previously. Without repeating that discussion, applicants reiterate that Cornet adds an internal header to control traffic flow through a fabric.

Likewise, applicant has discussed the Hsieh reference at length above. Without repeating that discussion in full, applicants reiterate that Hsieh teaches a field programmable interconnect device (FPID) for routing signals between the printed circuit boards (Hsieh, Col. 5, lines 16-18), and a read-only memory (ROM) which stores programming data for controlling the FPID (Hsieh, Col. 5, lines 63-65).

As discussed above, Notarianni relates to a method and apparatus for transferring data between a host device and a plurality of portable computers (Notarianni: Title; Abstract). The Examiner relies on Notarianni for the limited purpose of providing evidence that it is old and well known to incorporate a digital device onto a printed circuit board.

Bennett relates to a method and apparatus for automatically generating circuit designs that meet user output requirements (Bennett: Title; Abstract). Like Notarianni, the Examiner relies on Bennett for the limited purpose of providing evidence that it is old and well known to incorporate a digital device onto a printed circuit board.

Applicants maintain that that Claim 10 patentably distinguishes over the combination of Cornet, Hsieh, and what is old and well known in the art as evidenced by Notarianni and Bennett.

Applicants point out to that Claim 10 directly or indirectly depends from independent Claim 1. Thus, Claim 10 includes all the elements of Claim 1. As discussed previously, Claim 1 patentably distinguishes over the combination of the Cornet, Hsieh and Notarianni. Claim 10 depends from Claim 1 and thus incorporates by reference all of the elements set forth in Claim 1. Moreover, since Bennett fails to cure the deficiencies of Cornet, Hsieh and Notarianni, the combination of Cornet, Hsieh, and what is old and well known in the art as evidenced by Notarianni and Bennett does render Claim 10 obvious.

Bennett relates to a method and apparatus for automatically generating circuit designs that meet user output requirements (Bennett: Title; Abstract). Apparently, the examiner cited the Bennett patent as evidence that "it is old and well known in this art to incorporate a digital device on a printed circuit board" (See page 11 of the Non-final Office Action mailed April 22, 2010). However, assuming, arguendo, that the Examiner has correctly interpreted Bennett, this reference still fails to cure the above-discussed deficiencies of other cited references discussed above. Therefore, for at least the reasons set forth above, Claim 10 patentably distinguishes over the cited references, warranting reversal of the claim.

D. Whether Claims 12, 18 and 25 are Rendered Obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al., U.S. Patent No. 4,764,959 to Watanabe et al., and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al.

The failure of an asserted combination to teach or suggest each and every feature of a claim remains fatal to an obviousness rejection under 35 U.S.C. § 103. Section 2143.03 of the MPEP requires the "consideration" of every claim feature in an obviousness determination. To render a claim unpatentable, however, the Office must do more than merely "consider" each and every feature for this claim. Instead, the asserted combination of the patents must also teach or suggest *each and every claim feature*. *See In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) (emphasis added) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeal and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make "a searching comparison of the claimed invention - *including all its limitations* - with the teaching of the prior art." *See In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original). "If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious" (MPEP §2143.03, citing *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)).

The Examiner rejected Claims 12, 18, and 25 as being obvious under 35 U.S.C. § 103(a) with respect to U.S. Patent No. 7,254,112 to Cornet et al. in view of U.S. Patent No. 5,625,780 to Hsieh et al., U.S. Patent No. 4,764,959 to Watanabe et al., and what is old and well known in the art as evidenced by U.S. Patent No. 5,301,346 to Notarianni et al.. The Examiner contends that

the cited combination shows all of the elements recited in Claims 12, 18, and 25.

Applicants have discussed the Cornet reference previously. Without repeating that discussion, applicants reiterate that Cornet adds an internal header to control traffic flow through a fabric.

Likewise, applicant has discussed the Hsieh reference at length above. Without repeating that discussion in full, applicants reiterate that Hsieh teaches a field programmable interconnect device (FPID) for routing signals between the printed circuit boards (Hsieh, Col. 5, lines 16-18), and a read-only memory (ROM) which stores programming data for controlling the FPID (Hsieh, Col. 5, lines 63-65).

As discussed above, Notarianni relates to a method and apparatus for transferring data between a host device and a plurality of portable computers (Notarianni: Title; Abstract). The Examiner relies on Notarianni for the limited purpose of providing evidence that it is old and well known to incorporate a digital device onto a printed circuit board.

Watanabe discloses a single-chip microcomputer with an encryptable function on program memory which can encrypt the contents of the memory for protection of secrecy when the programs stored in read only memory (ROM) are read to the outside (Wantanabe: Abstract; Title). An encrypting code generator is provided to execute the encrypting and the encrypting code is stored in an instruction decoder, which decodes the encrypting code and sends it to the arithmetic and logic unit (ALU) (Watanabe: Col. 3, lines 4-11; Abstract). The ALU encrypts the data from the ROM based on the encrypting code from the decoder, and outputs the result to the outside on an input/output port (Watanabe: Col. 3, lines 4-11; Abstract).

The cited references do not teach or suggest Claims 12, 18 and 25, warranting reversal of the rejection of these claims.

Applicants point out to that Claim 12 depends from independent Claim 1, Claim 18 depends from Claim 14, and Claim 25 depends from independent Claim 19. Thus, Claim 12 incorporates by reference all the elements of Claim 1, Claim 18 incorporates by reference all the elements of Claim 14, and Claim 25 incorporates by reference all the elements of Claim 19.

As mentioned above, the Examiner rejected Claims 12, 18 and 25 under 35 U.S.C. § 103(a) as being unpatentable over Cornet, Hsieh, Watanabe, and what is old and well known in the art as evidenced by Notarianni. For at least the reasons previously, Claims 1, 14 and 19 patentably distinguish over the combination of the Cornet, Hsieh, and what is old and well known

in the art as evidenced by Notarianni. Claims 12, 18 and 25 depend from Claims 1, 14 and 19, respectfully, and incorporate by reference all of the elements set forth in the claims from which they depend. Moreover, Watanabe fails to cure the deficiencies of the cited references as discussed above. Therefore, the combination of Cornet, Hsieh, and what is old and well known in the art as evidenced by Notarianni does not render Claims 12, 18 and 25 obvious.

Wantanabe relates to a single-chip microcomputer with an encryptable function that can encrypt the contents of a memory for protection of secrecy when the programs stored in a read only memory (ROM) are read to the outside. Apparently, the examiner has cited Wantanabe for the limited purpose of disclosing the encryption of configuration information. However, assuming, arguendo that Watanabe does disclose such, this reference still fails to cure the above-discussed deficiencies of other cited references. Therefore, for at least the reasons set forth above, Claims 12, 18 and 25 patentably distinguish over the cited references. Thus, reconsideration of this rejection is respectfully requested.

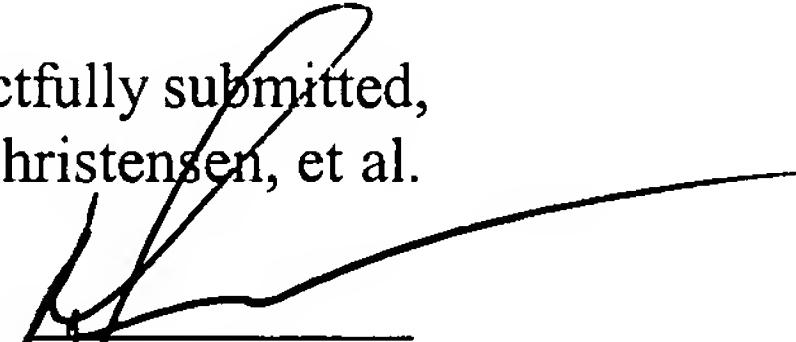
E. Conclusion

The cited references do not teach or disclose the features of the pending claims. Accordingly, applicants request that the Board reverse the rejections of Claims 1-25 under 35 U.S.C. § 103(a).

The Examiner has indicated that applicants can apply the fee submitted for the Appeal Brief filed on January 29, 2010 to this Appeal Brief. Therefore, applicants believe that no fee is currently due. In the event of any non-payment or improper payment of a required fee, the Commissioner is authorized to charge **Deposit Account No. 07-0832** as required to correct the error.

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8. CLAIMS APPENDIX

1. (Rejected) A broadcast router, comprising:

a plurality of input cards for inputting data into the broadcast router;

a plurality of output cards for outputting the data from the broadcast router;

at least one programmable device; and

a configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions,

wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

2. (Rejected) The broadcast router of claim 1, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

3. (Rejected) The broadcast router of claim 1, wherein the stored configuration information comprises at least one selected from a group consisting of:

configuration data for Field Programmable Gate Arrays (FPGAs),

checksums and codes to enable or disable logic in at least one of the FPGAs or other custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

4. (Rejected) The broadcast router of claim 1, wherein the difference involves at least one of adding at least one new function and removing at least one existing function.

5. (Rejected) The broadcast router of claim 1, wherein the at least one programmable device is disposed on at least one of the plurality of input cards and the plurality of output cards.

6. (Rejected) The broadcast router of claim 1, further comprising:
an expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router; and
a matrix card for receiving the data from the plurality of input cards for subsequent routing within the broadcast router.

7. (Rejected) The broadcast router of claim 6, wherein at least one of the expansion card and the matrix card provides support protocols to change input/output assignments of the data.

8. (Rejected) The broadcast router of claim 1, further comprising:
a combined expansion/matrix card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router and for receiving the data from the plurality of input cards for subsequent routing within the broadcast router.

9. (Rejected) The broadcast router of claim 6, wherein the at least one programmable device is disposed on at least one of the expansion card and the matrix card.

10. (Rejected) The broadcast router of claim 1, further comprising a control card for providing support protocols to change input/output assignments of the data.

11. (Rejected) The broadcast router of claim 6, wherein the at least one programmable device is disposed on at least the control card.

12. (Rejected) The broadcast router of claim 1, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

13. (Rejected) The broadcast router of claim 1, wherein the configuration control card

comprises a user-input device for receiving a user input for initiating a configuration of the at least one programmable device.

14. (Rejected) A method for changing a functionality of a broadcast router, the broadcast router at least having a plurality of input cards, a plurality of outputs cards, and at least one programmable device, the method comprising the step of:

providing a replaceable configuration control card for insertion into the broadcast router and for storing configuration information for configuring the at least one programmable device to perform a first set of functions,

wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

15. (Rejected) The method of claim 14, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

16. (Rejected) The method of claim 14, wherein the configuration information comprises at least one selected from a group consisting of:

configuration data for Field Programmable Gate Arrays (FPGAs),

checksums and codes to enable or disable logic in at least one of the FPGAs or other custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

17. (Rejected) The method of claim 14, wherein the difference involves at least one of

adding at least one new function and removing at least one existing function.

18. (Rejected) The method of claim 14, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

19. (Rejected) A broadcast router, comprising:

- a plurality of input cards for receiving data into the broadcast router;
- an expansion card for receiving the data from the plurality of input cards and arranging the data for transfer within the broadcast router;
- a matrix card for receiving the data from the plurality of input cards for subsequent routing within the broadcast router;
- a plurality of output cards for receiving the data from the matrix card and for outputting the data from the broadcast router;
- at least one programmable device; and
- a configuration control card for storing configuration information for configuring the at least one programmable device to perform a first set of functions,
 - wherein the configuration control card is configured for removal and replacement by at least one other configuration control card that stores other configuration information for configuring the at least one programmable device to perform a second set of functions having a difference from the first set of functions so as to change a functionality of the broadcast router.

20. (Rejected) The broadcast router of claim 19, wherein the broadcast router employs switch points, the data received by the plurality of input cards includes input streams, and the one or more functionalities comprise at least one of fading at the switch points, receiving alternate input streams, remote error monitoring, signal mixing, at least one of altering and enabling Digital Signal Processor (DSP) functions, metering, and modifying router size.

21. (Rejected) The broadcast router of claim 19, wherein the configuration information comprises at least one selected from a group consisting of:

- configuration data for Field Programmable Gate Arrays (FPGAs),
- checksums and codes to enable or disable logic in at least one of the FPGAs or other

custom Integrated Circuits (ICs),

checksums and codes that enable or disable different functionality of CPU-based state machines within the broadcast router, and

executable code that enables or disables different functionality of CPU-based systems within the broadcast router.

22. (Rejected) The broadcast router of claim 19, wherein the at least one programmable device is disposed on at least one of the plurality of input cards, the expansion card, the matrix card, and the plurality of output cards.

23. (Rejected) The broadcast router of claim 19, further comprising a control card for providing support protocols to change input/output assignments of the data.

24. (Rejected) The broadcast router of claim 23, wherein the at least one programmable device is disposed on at least the control card.

25. (Rejected) The broadcast router of claim 19, wherein at least a portion of at least one of the configuration information and the other configuration information is encrypted.

9. RELATED EVIDENCE APPENDIX

None.

10. RELATED PROCEEDINGS APPENDIX

None.